negative. The papules may be very pale and scarce, but occasionally are numerous and red. Exceptionally there is very much redness or itching. No local or general symptoms have been observed. The papules usually disappear at the end of a week. Moro says a positive result is as conclusive as that of the conjunctival or skin reactions. The only difference noted is that in advanced cases of tuberculosis the skin loses early its reactionary power to the inunction. In other cases that show no clinical signs of tuberculosis the percentage of positive results is much smaller in the inunction method. Another advantage of this method is that the applications are harmless when compared to the other reactions (the skin and eye), and the patients do not object to its use.

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**Continuous Inhalation of Oxygen in Pneumonia.**—GEORGE STOKER (*Medical Press and Circular*, 1908, lxxxvi, 90) notes that oxygen when used late in the disease, when the patient is cyanotic and gradually sinking, is often useless, giving but temporary relief. He thinks that it is this delay that has brought discredit on oxygen as a therapeutic agent. For the continuous effective inhalation it is essential to use a gas bag holding one cubic foot of oxygen filled and refilled from the cylinder as needed. This prevents gas from being inhaled when too cold and also measures the exact amount of gas which may be given in a certain length of time. It requires usually about two hours to empty the bag when under slight pressure. A soft rubber nose piece should be used and its tip inserted into one or the other nostril, as when held before the patient's mouth in the usual method it is found useless. Stoker reports at length a case of pneumonia treated in this manner as outlined above, in which all the symptoms subsided and the patient made a complete recovery within nine days. He concludes that the best results will be obtained when the oxygen is given as soon as the disease declares itself, and that the inhalations must be continuous day and night and kept up as long as the symptoms persist.

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**Treatment of Gonococcic Arthritis by Injections of Dead Gonococci and the Clinical Reaction which follows the Injections.**—E. E. IRONS (*Arch. Int. Med.*, 1908, i, 4333) gives the result of 40 cases of gonococcic infection inoculated with varying doses of the organisms, and concludes that in certain chronic cases the mechanism of immunity fails to rid the body of the organisms and they persist either in the original lesions or in one or more foci, thus giving rise to the new lesions in these cases. The injections seem to be of distinct value in these cases and of no harm. The dosage was at first 20,000,000 to 50,000,000 organisms, but later it was found advisable to increase to 100,000,000 and more. The interval between the injections varied from three to seven days. Further work and reports will enable one to give a more accurate dosage, and the percentage of favorable results, it may be hoped, will be greater. During the course of the injections the usual general therapeutic measures should also be tried. As a diagnostic procedure it may be of more use, as the reaction has many points in common with the tuberculin reaction; it should prove to be reliable (it must be tried in many more cases), and a valuable and much needed aid will be at hand for the diagnosis of obscure joint, synovial, and periosteal disease.

# SURGERY.

UNDER THE CHARGE OF

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**Radical Operation for Umbilical Hernia by Overlapping of the Flaps.**—BRENNER (*Archiv f. klin. Chir.*, 1908, lxxxvi, 20) says that since Lawson Tait, in 1884, first proposed this operation, there have been a large number of them done, although they are not all reliable; and the proportion of operations done to the total number of cases is small and the recurrences still too frequent. Pott, in 1903, estimated the permanent cures from operation for inguinal herniæ to be 92 per cent., in femoral 92.5 per cent., and in umbilical 54.7 per cent. for all methods. His collected cases from the literature show 4066 inguinal herniæ, 424 femoral, and 86 umbilical. Brenner found about the same proportions in a collection of hospital cases operated on. The results of operation in umbilical herniæ depend in large measure upon the size of the hernia. Busse in the small herniæ (from the size of the hazelnut to that of a walnut) obtained 100 per cent. of permanent cures, in the medium sized (apple to a goose egg) 50 per cent., and in the largest (double fist to a man's head) 25 per cent. The average permanent results should be estimated from the large and median sized herniæ, in establishing the value of radical operation. The various methods of operation are discussed. The method which Brenner has employed is very similar to and probably identical with that published by Wreden in 1906, but which Brenner had done in 4 cases before that time. He has already employed it in 26 cases up to the present time, 19 umbilical, 3 epigastric, and 4 ventral. Lumbar anesthesia is preferred. A sagittal incision is made over the hernia, and in the upper part, where the covering is thin, an elliptical portion is removed. The sac is isolated, opened, and the contents properly examined and returned. The sac is removed and the hernial ring closed by several sutures which include the peritoneum and the aponeurosis. The mass of fat covering the aponeurosis between the edges of the recti is then removed. The inner borders of the recti are then carefully exposed through small incisions in their sheaths. They are often 10 to 15 cm. apart, and their separation narrows below to the symphysis and above to the costal arch. This elliptical field must be strengthened and the umbilical ring obstructed by the two flaps which are to be made from the anterior sheaths of the recti. The fat is first lifted from the aponeurosis over the recti in a curved field, convex outward, far enough so that a flap of aponeurosis can be lifted from over each rectus, its cut edge being external and its attached border internal. This semilunar flap must be large enough, so that when it is separated by an arching incision along the outer margin of the exposed area and the flap is turned over toward the median line, it will reach to the inner border of the rectus of the opposite side. When both flaps are formed, the left one is turned over and its cut edge sutured to the inner attached border of the right flap, which is in turn inverted over the left. The elliptical area interposed between the separated recti is thus reinforced by these two new layers and the recti muscles are visible in their denuded areas. The skin flaps are then closed by sutures and drainage provided. In one case the wound was opened eight days after operation, and the flaps showed good nourishment. In another case from fat necrosis the edges of the wound separated, showing one of the flaps, which gradually became covered by granulations. Skin grafting was later performed and a permanent cure obtained. Of the 26 cases operated on, 3 died; 1 eight days after operation from a hemorrhage of a duodenal ulcer; a second three days after operation from necrosis of the transverse colon due to disturbance of the blood supply during the separation of the hernial ring; and a third case from septic peritonitis. The average course of the wound healing in the remaining 23 cases, was twenty-eight days.

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**Pulmonary Emboli after the Radical Cure of Inguinal Hernia.**—MAUCLAIRE (*Archiv. gén. d. chir.*, 1908, ii, 573) says that the discussion of postoperative emboli has concerned itself chiefly with its origin in appendicitis. Pulmonary emboli have been reported as occurring in cases of strangulated hernia, and Mauclaire thinks that the emboli reach the systemic circulation, probably, through the anastomoses between the portal system and the inferior cava. Following the simple radical operation for inguinal hernia, they are rare enough to warrant the report of additional cases. Fifty cases from the literature are studied and one personal case reported. The etiology is the most interesting feature of the subject. The causes are divided into local and general. The local include the local infections; and lesions of the epigastric vessels, femoral vein, and spermatic vessels. The general include general infections, the condition of the blood and heart, the condition of the local veins or those of the rest of the body, and too early standing after operation. Local infections require first consideration. It has been shown to have been present in several cases. Some authors found the wound normal, but suspected the deeper parts. In Mauclaire's case it was evident that the embolus resulted from a phlebitis of the spermatic cord in consequence of the manipulations during the operation. It may be transferred to the opposite side by anastomotic veins. This phlebitis has been observed in cases of gonorrhœa and varicocele. Bruner observed it in 50 cases. In 400 or 500 radical operations done by Mauclaire in the past ten years, it was observed four or five times. It can be complicated by early or late emboli. The femoral vein may become involved in the course of the operation or the later dressings. The phlebitis develops sometimes on the side corresponding to the operation, sometimes on the opposite side, just as it does from appendicitis. In cases of femoral phlebitis consecutive to operation for inguinal hernia, the lesion of the epigastric vein may be the original cause, the phlebitis extending to the femoral vein. By the anastomoses between the epigastric vein of the two sides or by the obturator veins, extension may occur to the opposite side. Pulmonary embolus in these cases is often fatal. The palliative treatment consists in avoiding or treating the local or general causes.

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**The Treatment of Acute and Subacute Suppurations by Bier's Passive Hyperemia.**—HEINRICHSEN (*Archiv. f. klin. Chir.*, 1908, lxxxvi, 158) says that his first results from this treatment led him to be skeptical of its value. These results were dependent partly upon a faulty technique, and partly upon cases unfavorable for the method. The constricting bandage should be applied either to the arm or thigh. The turns should not completely cover each other, but should surround the greater part of the limb, and the position should be changed somewhat at each application, if possible. The rubber bandage was protected underneath by a thin cotton bandage on the thigh, but on the arm no such protection was employed. Care, however, was observed not to permit wrinkling of the bandage, which might cause the formation of blisters. The passive hyperemia was continued twenty to twenty-two hours daily in acute cases, and ten to twelve hours in the subacute. For the shoulder-joint it was kept up only ten hours. Around the neck, a bandage 2 to 3 cm. broad was employed. Cupping apparatus was applied forty-five minutes to one hour. It may be applied for five minutes, then removed for two to three minutes, and re-applied for five minutes. In all, 178 cases were treated, 103 only by cupping, 71 by bandage, and 4 by a combination of both. The results showed that, under certain conditions, passive hyperemia in acute inflammations gives good results in a shorter time, and is to be preferred to a wide incision. To avoid failure the hyperemia must be given in proper dosage, the patients must be under continual observation and the wound not tamponed. The temperature after this treatment usually falls by crisis, rarely by lysis. In many instances there will be no inclination of the temperature to fall, but this is not an indication for a wide incision. Good results are obtained in cases of recent wounds and operations, in which infection is suspected.

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**Osteoplastic Filling of the Defect after Resection of the Lower Jaw with a Piece of Rib by Means of a Pedicle Flap from the Chest, or by a Free Transplantation.**—PAYR (*Zentralbl. f. Chir.*, 1908, xxv, 1065) has for some years been filling the defect by different kinds of prosthetic apparatus, made of magnesium. This consisted either of a splint made of magnesium plate, or a strong magnesium wire. These were suitably bent and introduced into holes made in the ends of the resection stumps, or, if a resection had been done on one side, the apparatus was attached by holes on the surface of the articular tubercle. He says that he would employ now such an apparatus carrying a metal head corresponding to the glenoid cavity. For the substitution of a resected middle piece of the jaw he advises a splint made of magnesium wire with two clasps attached to its ends, which are to be fastened by wire or screws, placed in holes bored in the resection stumps. This apparatus is applied easily, keeps the bones in good position, requires small space, and favors an exact closure of the cavity of the mouth. In one such case, in which the wire was employed, in ten days a complete water tight protection of the wound from the mouth was obtained. The plate has the disadvantage that its sharp margins produce a secondary necrosis of the mucous membrane by pressure. In most of the cases the wire was removed in from seven to ten weeks, and was replaced by a dental substitute. In one case the magnesium apparatus healed in without a fistula, and was completely absorbed and replaced by a thick and cosmetically sufficient scar. Only isolated attempts have been made to fill the defects by osteoplastic methods. No appropriate osteoplastic method has yet been developed for the different requirements, and brought into general use. Payr, for several years, has been considering the advisability of employing a piece of rib covered by periosteum for this purpose. This may be accomplished in one of two ways. A piece of rib of suitable length may be resected through a small incision below the clavicle, and then displaced between the skin and fascia to a new position, from which the skin and fascial flap is to be taken later. The concavity of the resected piece is made to look toward the skin. After two or three weeks, a new vascular supply is established between the piece of rid and the surrounding tissues. In the second operation the diseased portion of the jaw is removed and is replaced by the rib carried in a long, wide, tongue-shaped flap of skin and fascia, the piece of rib being fastened into the defect in the jaw. Finally, the skin flap is employed to fill in defects in the mucous membrane or skin, or it is replaced in its original position. A second method is by the free transplantation of a piece of rib into the defect. Payr has employed the first method in 2 cases and the second in 1, with good results.

**The Pathology of Cholelithiasis.**—EXNER and HEYROSKI (*Archiv f. klin. Chir.*, 1908, lxxxvi, 609) say that bacteria in the bile, by their growth, decompose glycocholate and taurocholate of sodium, as well as other biliary salts. Then the cholesterin is not held in solution, be cause of the absence of these salts. Some bacteria are especially capable of producing this decomposition, and are therefore especially prone to give origin to stone formation. Even in bile sterile for a long time decomposition of the biliary salts can occur. The soap and fat contained in the bile play no part in the development of cholesterin. The bodies in the bile, considered up to the present time to be fatty acids, actually contain only a small proportion of fatty acids. The proportion of these acids in the bile is actually, approximately, only one-tenth of what it has been supposed to be. These facts are of much importance in connection with the origin of gallstones, since they show that bacterial infection of the gall-bladder must result in cholesterin formation and thus give cause for the formation of cholesterin calculi.

**The Development of Weight-bearing Stumps, by Means of Hirsch's After-treatment, in the Japan-Russian War.**—HASHIMOTO and SAITO (*Archiv f. klin. Chir.*, 1908, lxxxvi, 589) report the results of amputation of the lower extremity in 38 cases, in some on both sides of the body. The after-treatment consisted in elevation of the limb, massage several times daily, wrapping the limb in cotton after the massage, treading exercises, a lysol bath every evening, standing several times daily upon a provisional apparatus the cavity of which was filled with cotton, and walking exercises upon this apparatus. Amputation is one of the most important operations in military surgery. Upon the battle field, every aid should be provided, in order to avoid crowding of the wounded men. All efforts must be made to transport the wounded, the wound put in as favorable a condition as possible, so that infection and hemorrhage in transport shall be avoided. Hashimoto and Saito recommend a quick and simple amputation on the field of battle, by the circular incision through the bone or joint. The stump will not be at once weight-bearing. The osteoplastic operations, having for their object an early weight-bearing stump, are too troublesome or dangerous for employment on the battlefield. When a rapid amputation is necessary as on the battlefield, the circular method with the Hirsch after-treatment, is recommended. This gave good results in their 38 cases. When time during the operation is not a factor, and a choice can be made of a method which will give undisturbed wound healing, then the stump should be selected which will soonest bear weight.

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**Tetany following Thyroidectomy Cured by the Subcutaneous Injection of Parathyroid Emulsion.**—BRANHAM (*Annals of Surgery*, 1908, xlviii, 161) reports a case in which a goitre was removed from a girl, aged fourteen years. Although an effort was made to avoid the parathyroids, it was afterward shown that some parts were removed with the gland, some remaining. The patient was apparently making an uninterrupted recovery, until eighty-eight hours after the operation, when the teeth became clinched. Shortly afterward the hands became contracted and the feet affected (talipes equinovarus), wrists flexed on the forearms (full flexion) and the forearms slightly flexed on the arms (at right angles). Reflexes were not exaggerated, no elbow or wrist jerk. The head was thrown back, teeth clinched, but the face not distorted. Only her head, shoulders, buttocks, and heels touched the bed. The temperature was 38.5° C., and the symptoms toward the last of the attack were alarming. There were distinct exacerbations like those of tetanus, during which the pulse was rapid and the respirations difficult. Thyroid extract in doses of 0.192 gram were ordered every three hours, and every four hours she was given 0.0648 gram of parathyroid extract. No relief followed, but the contractions became more marked. On the following day, six raw, fresh beef parathyroids were forced into the mouth and they were swallowed. This was repeated on the next morning and night. The symptoms became more pronounced. On the same night, five of the glands were placed in a 1 to 1000 bichloride solution and allowed to soak ten minutes. Observing strict asepsis, the glands were cut into fine pieces under physiological salt solution. These pieces were placed in a mortar and ground into a homogeneous mass, 400 c.c. of sterile salt solution being added. This was then filtered through sterile gauze and given as a transfusion into the patient's breast at 10 P.M. At 1.30 A.M. on the following morning, she was asleep and the contractions were becoming less violent. They disappeared in her hands, arms, and face by 10 A.M. and her lower extremities were nearly relaxed. The temperature dropped from 38.5° C. at 8 P.M. on the second day after the beginning of the attack to 36° C. on the third day. There were no more contractions until the fifth day, when there was a recurrent attack lasting twenty minutes, and involving only the face. This was succeeded by milder attacks which lasted until about 11.30 P.M. at which time she was given two parathyroids subcutaneously in 100 c.c. of salt solution. The attack ceased almost immediately, and the patient has remained free from any symptoms of tetany up to the present time, more than a year after the operation. The permanent results are probably due to the fact that parathyroids were not all removed. The parts left were undoubtedly so damaged by the traumatism of the operation that their functions were suspended; but as they recovered, their normal work was resumed and possibly compensatory hypertrophy was secured.

**Musculospiral (Radial) Paralysis Due to Dislocation of the Head of the Radius.**—STETTEN (*Annals of Surgery*, 1908, xlviii, 275) says that musculospiral paralysis as a result of dislocation of the head of the radius is a distinct type of nerve injury, and is quite as definite and characteristic as any other form of injury to this nerve. In fact, in every case of anterior dislocation of the head of the radius the two divisions of the musculospiral nerve are in danger and it is a fortunate accident if they escape. Its actual occurrence is naturally rare, but comparatively, that is, compared to the frequency of the joint injury itself, it is not infrequent. It is most likely to occur when the dislocation accompanies ulnar fracture and when the direction of the dislocation is forward and slightly outward. The nerve is almost invariably injured below its point of division into the posterior interosseous and radial. One or both branches may be caught by the dislocated head. The symptoms are practically those of the typical musculospiral palsy. They may vary greatly in extent or degree, depending upon whether one or both nerves be injured and how badly. The supinator longus muscle escapes involvement. The prognosis is good under appropriate treatment, which is practically the same as that for the dislocation: simple reduction, if possible, and generally resection of the head of the radius in old cases, with nerve suture if necessary. Should the nerve be uninjured in a dislocation of the radial head, its close proximity to the head of the bone should be borne in mind, the dislocation should be reduced, and care should be exercised not to injure the nerve by pressure, hyperextension, or careless operative technique.

## THERAPEUTICS.

UNDER THE CHARGE OF

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**Clinical Observations on the Intravenous Use of Strophanthin.**—LUST and HOEPFFNER (*Deut. Arch. f. klin. Med.*, 1908, xcii, 282, 485) relate their experiences with the intravenous use of strophanthin. Lust gives detailed histories of some especially instructive cases; Hoepffner bases his conclusions on observations in 34 cases. Both consider the action of strophanthin very similar to that of digitalis, but stronger and more prompt. Lust's conclusions are as follows: (1) Acute cases of cardiac insufficiency in which digitalis works too slowly can be favorably influenced in a few minutes by a single injection of strophanthin; occasionally a second dose may be necessary. (2) A diminution of the pulse-rate with an increase in the size of the individual beats occurs in a few minutes, increased diuresis follows after a few hours, and the general condition improves. (3) Given in combination with digitalis it serves to increase and maintain the digitalis stimulation; for this purpose it should be given in small and repeated injections. (4) It should be given in doses of 0.5 to 1 milligram; often 0.3 milligram will be sufficient to begin with. (5) To prevent a cumulative action, injections of 1 milligram should not be repeated oftener than once in twenty-four hours. (6) It is of no therapeutic value in nephritis when other diuretics fail; it may be of diagnostic value and point the way to subsequent therapy in those cases in which it is doubtful whether the insufficiency is cardiac or renal. (7) It is of no value in pneumonia.

In five cases of pneumonia, Hoepffner saw improvement of the circulation only once. From this he does not draw any conclusions; furthermore, he thinks strophanthin was probably given too late. He also suggests, as an additional reason for its failure, that in pneumonia the paralysis of the vasomotor system is the chief cause of the failure of the circulation. Hoepffner observed two cases of acute heart failure during convalescence after infectious diseases, in both of which the subjective and objective symptoms promptly disappeared after the injection of 0.5 milligram of strophanthin. In pulmonary tuberculosis no diminution of pulse-rate was obtained, although the size of the pulse seemed increased. Hoepffner sums up the indications for the use of strophanthin as follows: (1) Severe cardiac insufficiency, in which digitalis has lost its effect. (2) To re-inforce digitalis therapy and to shorten the period of use of digitalis. (3) Cases of cardiac insufficiency in which other means have failed.

With regard to bad results, chills at first were frequently observed, but since the perfection of the preparation for intravenous use they no longer occur. Lust had one case in which death occurred fourteen hours after an injection of 1 milligram. He thinks this death had no connection with its use. Hoepffner had two fatal cases. One died three minutes after the injection of 1 milligram, too short a time for any poisonous drug action. This case was a severe case of failure of compensation, and he thinks death was coincident with the injection, but not caused by it. The second case (one of the early ones), died during a chill. He thinks this death could now be avoided with the perfected preparation.

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**The Use of Fresh Animal Sera in Hemorrhagic Conditions.**—LEARY (*Boston Med. and Surg. Jour.*, 1908, iii, 73) says that the power of blood sera and tissue juices to promote coagulation has been known for some time to physiologists. The practical application of this knowledge is due largely to the work of Weil, who first used fresh animal sera in hemophilia. Weil's work brought out these facts: That the blood serum of horses, of rabbits, and of beef creatures, as well as human serum, would control hemorrhages by increasing the coagulability of the